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The prevalence of overweight and obesity among adults with intellectual and developmental disabilities in Ahvaz, Iran

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ABSTRACT

The prevalence of overweight and obesity among people with intellectual and developmental disabilities (IDD) is 4 times more than any other people in the community, but a little research have been examined the prevalence of overweight and obesity among people with intellectual disabilities (ID) recently, So the present study aimed in order to estimate the prevalence of overweight and obesity in ID people in Ahvaz, Iran.205 adults with IDD who had referred to five rehabilitation centers to receive rehabilitation services participated in this cross-sectional study. In addition to demographic information of ID people, data on their height and weight were collected to measure the body mass index (BMI). 69 percent of participants are male and 97 individuals had Down syndrome. The results of the present study Demonstrated that the prevalence of overweight and obesity among people with ID is high and about 57 percent. The results showed that there is a statistically significant difference between gender, IQ level, family size; and disability type with the prevalence of overweight and obesity.Implementation of intervention programs such as physical activities over the week in supportive institutions, as well as increasing parent awareness of IDD people about overweight and obesity could help to reduce the prevalence of overweight and obesity among people with IDD.

KEY WORDS: OVERWEIGHT, OBESITY, PREVALENCE, PEOPLE WITH INTELLECTUAL AND DEVELOPMENTAL DISABILITIES

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INTRODUCTION

One of the most important health problems in many countries is overweight or obesity of adults (Wille *et al.* 2008; James *et al.* 2004). The prevalence of overweight and obesity in adults are estimated 6 billion and 400 million respectively which have doubled in the last 20 and it seems to increase as an epidemic and common problem in communities in addition (World Health Organization, 2008; World Health Organization, 2007). They cause many other diseases such as diabetes, hypertension, gallbladder and osteoarthritis disorders (James, 2001). Overweight and obesity is considered as an epidemic and common problem in communities it is increasing; moreover obesity and its related complications impose significant costs on society (Obesity, 2000).

The prevalence of overweight and obesity among people with IDD in United States is 4 times more than any other people in the community (Rimmer and Yamaki, 2006; Mikulovic *et al.* 2011), but very few studies are conducted regarding the prevalence of overweight and obesity among people with IDD newly and the majority of studies have addressed the prevalence of overweight and obesity in different age groups and among adolescents and young people (Barzin *et al.* 2009). Hsieh *et al.* in the United States showed that over 38% of people with mental disabilities had a BMI more than 30 and women are more obese than men in this study. In addition, people with Down syndrome have highest prevalence of obesity among different groups with IDD and they plus had more health problems than other community members (Hsieh *et al.* 2012).

The result of another study by Bhaumik *et al.*(2008) in the UK showed that only 34.6% of people with IDD had normal BMI and most of them had overweight and obesity problem. Beside, in the study it is found that people with IDD had higher blood pressure, poorer nutritional status and more high-risk behaviors than healthy people,(Bhaumik *et al.* 2008). People with ID often have a mortality rate greater than the general population, their health status is less than others and the prevalence of obesity in them is higher than other members of society due to immobility, lack of exercise and poor nutritional status (Koritsas and Iacono, 2015).

According to our research, Iranian scientific resources show that no study has been conducted on the prevalence of overweight and obesity in individuals with IDD, so this study was aimed to investigate the prevalence of overweight and obesity among adults with IDD in Ahvaz and its results could contribute in developing health care programs to support these people.

MATERIAL AND METHODS

STUDY DESIGN AND DATA COLLECTION

This study has been designed and conducted to investigate the prevalence of overweight and obesity among people with IDD in Ahvaz. 205 adults with IDD (like: Down syndrome, cerebral palsy, autism spectrum disorders and intellectual disability) who had referred to eight rehabilitation centers (medical and vocational rehabilitation centers) to receive rehabilitation services participated in this cross-sectional study. The demographic information of the people with IDD have been obtained from existing records in centers and this information includes items such as: age, gender, language, IQ, race, ethnicity, disability type, place of residence, educational status and employment status. Data on their height and weight has been collected over a period of two months from May to July 2016 by two professionals.

STATISTICAL ANALYSIS

For calculating the overweight or obesity the body mass index (BMI) was used such that first the height is measured by the wall by stadiometer with accuracy of 0.5 and then their weight was obtained by minimum clothing and no shoes on a scale with an accuracy of 100 grams. BMI was achieved by dividing weight (in kilograms) by the square of height (in meters) and someone with a BMI of less than 18.5 is underweight, between 18.6 and 25 is normal, between 25.1 and 30is overweight and the one with the BMI higher than 30 is obese (International Obesity Task Force, 2007). Data has been analyzed using SPSS version 16 software. Descriptive statistics such as mean, SD and frequency percentage are used to report BMI, age and gender. As well, the Chi Square and ANOVA tests have been applied used to evaluate the prevalence of overweight and obesity in terms of gender, ethnicity, location and different age groups.

Parents of all people with IDD were announced of the purpose of the study and they signed the informed consent. This research ethics code IR.AJUMS.REC 263.1395 has been confirmed by Jundishapour University of Medical Sciences Ethics Committee.

RESULTS

The results showed that133 of participants (69%) were male and 73 participants were female. 97 people with had Down syndrome, 81 with intellectual disability (ID), 13 individuals had autism, and 14 of participants had cerebral palsy (CP) that 53% (108 cases) had IQ within the range of 51-70 and

Table 1. demographic information of people with ID

Variables	Categories	Frequency n (%)
Gender	Male	133(65)
	Female	72(35)
Age (year)	15-25	132(64)
	26-35	59(29)
	36-44	14(7)
IQ	<50	58(28)
	51-70	109(53)
	>70	38(19)
Race	Persians	84(41)
	Arabs	121(59)
Residential Area	Urban	175(85)
	Rural	30(15)
Education	Diploma	16(8)
	Under Diploma	189(92)
Occupation	Supportive Employment	70(34)
	Sheltered Employment	38(19)
	Unemployed	97(47)
parent's Education	Illiterate	99(48)
	Diploma	76(37)
	Academic	30(15)
Family Size	<7	76(37)
	≥7	129(63)
Disability Type	Down Syndrome	97(47.3)
	Intellectual Disability only	81(39.5)
	Autism	13(6.4)
	Cerebral Palsy	14(6.8)

58 cases had the IQ range less than 50. Fifty nine percent of respondents were Arabic speakers and 41% of them were Farsi speakers; and about 73% of them lived in large families (more than 7 members). Most people with intellectual and developmental disabilities were urban dwellers and had under diploma education. Only 15% of parents of persons of these people had academic degree and about 88% of them were covered by social security insurance. The demographic features of the participants have been reported in Table 1. As figure 1 suggests, 57% of the people with IDD suffer from overweight and obesity, 13.7% are underweight and only 29% have normal BMI. Among the various IDD, prevalence of obesity is higher in people with Down syndrome than other types of disability (Figure 2). Based on the results presented in Figure 3, the prevalence of overweight and obesity among women is higher than men.

The results presented in table 2 show there is a significant difference between gender of participants and the prevalence of overweight and obesity (P=0.001), but statistically there is no difference between participants ethnicity and the prevalence of overweight and obesity (P= 0.32). ANOVA test results has demonstrated that there is no significant difference between different age groups and the prevalence of overweight and obesity (P=0.502). The results also has depicted that the prevalence of overweight and obesity of people with an IQ less than 50 is higher than the other groups (P=0.02). The prevalence of obesity among large families (more than 7 members) has a significant difference with smaller families (less than 7 members) (P=0.031). Table 2 shows the results of the relationship between the prevalence of overweight and obesity and demographic data of individuals with IDD.

DISCUSSION

The current research has been designed and performed in order to estimate the prevalence of overweight and

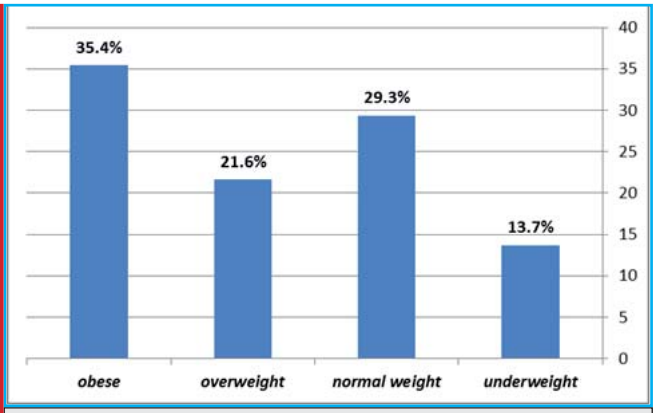

FIGURE 1. BMI status for adults with Developmental and Intellectual Disabilities

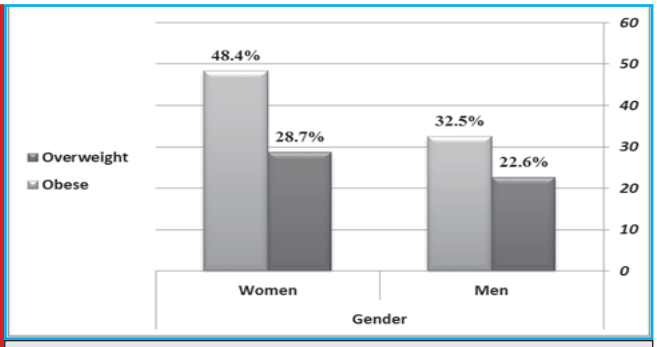

FIGURE 2. Prevalence of overweight and obesity by gender of ID people

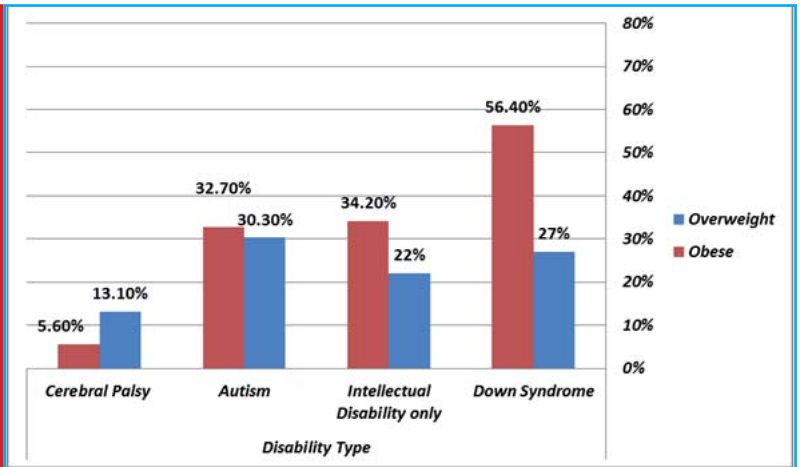

FIGURE 3. Overweight and obesity prevalence by disbility type of ID people

Table 2. BMI status and its relation with participant variables

Variables	Categories	BMI Status		BMI Status	
		overweight	p-value	Obesity	p-value
Gender	Male	26.75	0.001	32.06	0.001
	Female	29.23		36.47	
Age groups (year)	15-25	27.74	0.502	33.25	0.672
	26-35	28.83		34.16	
	36-44	28.39		33.92	
IQ	<50	28.63	0.02	36.54	0.001
	51-70	26.18		32.37	
	>70	26.35		33.74	
Residential Area	Urban	29.32	0.012	35.24	0.001
	Rural	26.07		31.15	
Family Size	<7	27.14	0.03	31.78	0.02
	≥7	29.59		35.41	
Disability Type	Down Syndrome	29.34	0.01	36.32	0.001
	Intellectual Disability only	27.88		32.63	
	Autism	27.31		30.82	
	Cerebral Palsy	26.8		30.01	

obesity among adults with IDD in Ahvaz. The results showed that the prevalence of overweight and obesity in adults with IDD is about 36% which indicates the high rate of obesity in this group. Hsieh *et al.*(Hsieh *et al.* 2012) in their research on adults with ID living in the American community have noted that the prevalence of obesity in the population was about 38% which in keeping with the results of the present research. A study by Mikulovic *et al.*(Mikulovic *et al.* 2011) on people with ID showed that 19% of 535 cases have overweight which in consistent with the results of the current. In Mikulovic study the prevalence of obesity among people with ID is reported about 4% which is inconsistent with the present results. The reason for this high difference in the prevalence is perhaps due to the individuals that in Mikulovic study only persons with ID are studied while in our study, most individuals have Down syndrome that usually the prevalence is high in this population compared to other people.

The findings of various studies indicate that the prevalence of overweight among men is less than women; the results also show that women are more obese than men (Hsieh *et al.* 2012). The results of these studies are consistent with the present study, the present study showed that the prevalence of overweight (22.6% Vs 28.7%, P=0.001) and obesity (32.5% Vs 48.4%, P=0.001) in women is higher than men. Yamaki and Rimmer research's results on obesity consideredthat the prevalence of obesity in people with Down syndrome is higher than other disabilities and it is about 71%, as well people with ID have the second place in the prevalence of obesity among people with IDD (9). The present study considered that people with Down syndrome have the highest prevalence of obesity among other disabilities. In the present research, people with CP had the lowest prevalence of obesity which is consistent with Rimmer and Yamaki research.

El Raghi *et al.*in Sudan stated that there is no significant correlation between age and the prevalence overweight and obesity (P =0.4) (El Raghi *et al.* 2016). Emerson in his research on adults with ID showed that there is no significant difference between the prevalence of obesity and different age groups (Emerson, 2005) which is consistent with the present research findings. The results revealed that the prevalence of obesity among families with more than 7 members and people with the IQ less than 50 is more than other groups. El Raghi indicates that there is no significant difference between the prevalence of obesity and IQ which is not consistent with the results of the present study (El Raghi *et al.* 2016). The reason might be due to the fact that people with 50> IQ due to the cultural issues and they may cause harm to others are kept at home and have low mobility and this lifestyle has led to gain extra weight and obesity compared to the other groups. Another interesting result of this study is that there is a significant difference between the prevalence of overweight and obesity in terms of the place of residence such that the prevalence of overweight and obesity in rural dwellers is lower than urban dwellers. Hseih *et al.*in their study to determine the factors influencing obesity among people with intellectual disabilities found that urban lifestyle compared to rural lifestyle leads to higher prevalence of obesity and overweight which is consistent with the present study (Hsieh *et al.* 2012).

LIMITATIONS AND ADVANTAGES

The participants of this study were the ones who referred to educational and supportive institutions and these people might not be the representative of the entire people with IDD in Ahvaz. Additionally, in this study the effect of factors such as diet habits, movement restrictions and drug usage are not studied on overweight and obesity. One of the most important advantages of the present study is that this is the first study conducted to estimate the prevalence of overweight and obesity among people with IDD in Iran.

CONCLUSION

The results of the present study showed that the prevalence of overweight and obesity among adults with IDD is high (57%); and it is higher than other community groups which necessitates the intervention. Implementation of intervention programs such as physical activities over the week in supportive institutions, as well as, increasing parent awareness of intellectual and developmental disabilities people about overweight and obesity could help to reduce the prevalence of overweight and obesity among people with intellectual and developmental disabilities.

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